

Claims:

1. An underground water storage tank (10) configured to be buried underground and to be capable of storing water therein, characterized in that said underground water storage tank comprises:

an internal water storage sub-tank (11) provided by coating an assembly of water-bearing materials (12) obtained by combining multiple water-bearing materials (12) with one another with a first water-impermeable sheet (14);

soil pressure absorption plates (26) provided outside said internal water storage sub-tank (11); and

a second water-impermeable sheet (27) for coating said soil pressure absorption plates (26).

2. The underground water storage tank of claim 1, wherein said water-bearing materials are rigid pipes (12) made of resin, respectively; and

wherein said assembly of said water-bearing materials is formed by mutually and parallelizingly coupling said multiple rigid pipes (12) by pipe coupling means (13) in a state that said multiple rigid pipes (12) are vertically set and arranged at predetermined intervals therebetween in a horizontal direction.

3. The underground water storage tank of claim 2, further comprising rod-like steel materials (23) vertically piled underground;

wherein applicable ones of said rigid pipes (12) are fitted on and affixed to said rod-like steel materials (23),

respectively, so that said assembly of said water-bearing materials is fixed to said rod-like steel materials (23).

4. The underground water storage tank of any one of claims 1 through 3, wherein said internal water storage sub-tank (11) comprises multiple internal water storage sub-tanks (11) provided in a horizontal direction with inter-tank cushioning materials (24) interposed therebetween, respectively; and

wherein said second water-impermeable sheet (27) is continuously established to coat said multiple internal water storage sub-tanks (11).

5. The underground water storage tank of any one of claims 1 through 4, wherein an outer water storage compartment (29) including said soil pressure absorption plates (26) is defined between said first water-impermeable sheet (14) and said second water-impermeable sheet (27);

wherein one or two or more first intake pipes (28), each having one end communicated to said internal water storage sub-tank (11) and the other end opened into said outer water storage compartment (29), are provided to penetrate through said first water-impermeable sheet (14); and

wherein the or each first intake pipe (28) is provided with a first non-return valve (31) configured to: allow water to flow from said outer water storage compartment (29) into the interior of the or each internal water storage sub-tank (11), when a water pressure of said

outer water storage compartment (29) is equal to or higher than a water pressure within the or each internal water storage sub-tank (11); and prevent water from flowing from the interior of the or each internal water storage sub-tank (11) to said outer water storage compartment (29), when a water pressure of said outer water storage compartment (29) is below a water pressure within the or each internal water storage sub-tank (11).

6. The underground water storage tank of claim 5, further comprising multiple vertical pipes (71), and coupling pipes (72) for coupling said vertical pipes (71) to one another, said vertical pipes (71) and said coupling pipes (72) being embedded in said soil pressure absorption plates (26);

wherein the or each first intake pipe (28) is provided through said first water-impermeable sheet (14) so that the other end of the or each first intake pipe (28) is opened into the interior of applicable one of said vertical pipes (71); and

wherein said first non-return valve (31) is provided at the other end of the or each first intake pipe (28) inside said applicable vertical pipe (71).

7. The underground water storage tank of claim 5 or 6, further comprising:

one or two or more second intake pipes (51) each having one end set to penetrate through said second water-impermeable sheet (27) and communicated with said outer

water storage compartment (29), and the other end opened underground around the outer periphery of said second water-impermeable sheet (27);

a second non-return valve (52) provided at one end or other end of the or each second intake pipe (51), and configured to: allow water to flow from the other end of the or each second intake pipe (51) to one end thereof, when a water pressure at the other end of the or each second intake pipe (51) is equal to or higher than a water pressure at the one end of the or each second intake pipe (51); and prevent water from flowing from the one end of the or each second intake pipe (51) to the other end thereof, when a water pressure at the other end of the or each second intake pipe (51) is below a water pressure at the one end of the or each second intake pipe (51); and

a perforated tube (53) formed with a plurality of water-permeable holes (53a) over a periphery thereof, and buried in a manner to have one end connected to the other end of the or each second intake pipe (51) or to said second non-return valve (52), and the other end to be located above said second non-return valve (52).

8. An underground water storage tank (110) configured to be buried underground and to be capable of storing water therein, characterized in that said underground water storage tank comprises:

an internal water storage sub-tank (111) comprising first water-bearing materials (112) coated with a first

water-impermeable sheet (114);

an outer water storage compartment (119) defined between said first water-impermeable sheet (114) provided around said internal water storage sub-tank (111) and a second water-impermeable sheet (118), and provided by coating second water-bearing materials (117) disposed around said internal water storage sub-tank (111) with said second water-impermeable sheet (118);

one or two or more intake pipes (121) each provided to penetrate through said first water-impermeable sheet (114) and to have one end communicated to said internal water storage sub-tank (111) and the other end opened into said outer water storage compartment (119);

a non-return valve (122) provided at the or each intake pipe (121) and configured to: allow water to flow from said outer water storage compartment (119) into the interior of said internal water storage sub-tank (111), when a water level of the outer water storage compartment (119) is equal to or higher than a water level inside said internal water storage sub-tank (111); and prevent water from flowing from the interior of said internal water storage sub-tank (111) into said outer water storage compartment (119), when a water level of said outer water storage compartment (119) is below a water level inside said internal water storage sub-tank (111); and

a water supply pipe (127) for supplying said outer water storage compartment (119) with water which is to be

stored into said internal water storage sub-tank (111) through said non-return valve (122) and the or each intake pipe (121).

9. The underground water storage tank of claim 8, wherein said internal water storage sub-tank (111) comprises multiple internal water storage sub-tanks (111) arranged in a horizontal direction with second water-bearing materials (117) interposed therebetween; and

wherein said second water-impermeable sheet (118) is continuously established to coat said multiple internal water storage sub-tanks (111).

10. The underground water storage tank of claim 8 or 9, wherein said second water-bearing materials (117) each comprises an expanded resin plate material having a surface formed with a plurality of water flow grooves (117a).

11. The underground water storage tank of any one of claims 8 through 10, wherein said water supply pipe (127) is provided at a lower portion of said outer water storage compartment (119) so that the one end of said water supply pipes (127) is located lower than the other end thereof;

wherein the one end of said water supply pipe (127) is connected to a management liquid measure (128) provided outside said second water-impermeable sheet (118); and

wherein said management liquid measure (128) is configured so that water supplied to said management liquid measure (128) is supplied into said outer water storage compartment (119) from said management liquid measure (128)

through said water supply pipe (127).

12. The underground water storage tank of claim 11, further comprising multiple vertical pipes (171), and coupling pipes (172) for coupling said vertical pipes (171) to one another, said vertical pipes (171) and coupling pipes (172) being embedded in said second water-bearing materials (117);

wherein the other end of said water supply pipe (127) is connected to applicable one of said vertical pipes (171);

wherein the or each intake pipe (121) is provided at said first water-impermeable sheet (114) such that the other end of the or each intake pipe (121) is opened into the interior of applicable one of said vertical pipes (171); and

wherein said non-return valve (122) is provided at the other end of the or each intake pipe (121) inside said applicable vertical pipe (171).